State Revolving Fund Loan Programs

Drinking Water, Wastewater, Nonpoint Source

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

CITY OF SOUTH BEND
EMBEDDED CSO SENSOR MONITORING
SRF PROJECT WW09 54 71 02

DATE: July 15, 2009

TARGET PROJECT APPROVAL DATE: August 14, 2009

I. INTRODUCTION

The above entity has applied to the Waste Water State Revolving Loan Fund (SRF) for a loan to finance all or part of the waste water project described in the accompanying Environmental Assessment (EA). As part of facilities planning requirements, an environmental review has been completed which addresses the project's impacts on the natural and human environment. This review is summarized in the attached EA.

II. PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT (FNSI)

The SRF Waste Water Program has evaluated all pertinent environmental information regarding the proposed project and determined that an Environmental Impact Statement is not necessary. Subject to responses received during the 30-day public comment period, and pursuant to Indiana Code 4-4-11, it is our preliminary finding that the construction and operation of the proposed facilities will result in no significant adverse environmental impact. In the absence of significant comments, the attached EA shall serve as the final environmental document.

III. COMMENTS

All interested parties may comment upon the EA/FNSI. Comments must be received at the address below by the deadline date above. Significant comments may prompt a reevaluation of the preliminary FNSI; if appropriate, a new FNSI will be issued for another 30-day public comment period. A final decision to proceed, or not to proceed, with the proposed project shall be effected by finalizing, or not finalizing, the FNSI as appropriate. Comments regarding this document should be sent within 30 days to:

Amy Henninger
Senior Environmental Manager
State Revolving Fund -- IGCN 1275
100 N. Senate Ave.
Indianapolis, IN 46204
317-232-6566

ENVIRONMENTAL ASSESSMENT

I. PROJECT IDENTIFICATION

Project Name and Address:	**Embedded CSO Sensor Monitoring** City of South Bend Department of Public Works 1316 County-City Building 227 W. Jefferson Boulevard South Bend, IN 46601-1830
SRF Project Number:	WW09 54 71 02
Authorized Representative:	Mr. Gary Gilot, Director of Public Works City of South Bend

II. PROJECT LOCATION

South Bend is located in St. Joseph County in northern Indiana. The project areas include ten combined sewer overflow (CSO) structures. The CSO project sites for CSOs 003, 004, 025, and 044 are located on the South Bend West USGS topographic quadrangle at T37N, R2E, Sections 1and 2 as well as T38N, R2E, Sections 26 and 35, while CSO project sites for CSOs 011,014, 026, 027, 028, and 030 are located on the South Bend East USGS topographic quadrangle at T37N, R2E, Sections 1 and 12 (Figure 1-2).

III. PROJECT NEED AND PURPOSE

South Bend is currently negotiating a Consent Decree with the Indiana Department of Environmental Management (IDEM) and the U.S. EPA for its CSO Long Term Control Plan (LTCP) with the primary objective of reducing the concentration of E. coli bacteria in the St. Joseph River. The LTCP includes collection system monitoring and real-time control methods for managing and reducing CSOs as well as evaluation of in-line storage of combined sewer flows within the trunk sewers.

The city is currently using an innovative wireless sensor system called CSONet that can be used to monitor and control combined sewer systems and reduce CSO events. Phase I of the city's CSONet project focused on system monitoring which was completed in 2008. A net work of level sensors and flow meters were installed in the CSO structures and in key trunk sewers. Communication devices were also installed to enable the city to monitor wet weather levels and flows at key locations in the combined sewer system.

Since Phase I has been completed and data is available, the Phase II improvements will provide for the monitoring, management and optimization of the combined sewer system. By making effective use of

existing infrastructure using real time control, it is expected that CSONet will reduce construction costs over the long term.

South Bend has a total of 36 CSO diversion structures in their combined sewer system. Some of the CSO diversion structures have smaller diameter regulator throttle pipes that become plugged due to the buildup of debris in the collection system preventing flows from reaching the interceptor. When this happens dry weather overflows will occur and continue to occur in the future.

The proposed project entails construction of new throttle pipe from some CSO structure to the interceptor sewer. During dry weather, flow from a sub-basin flows from a trunk sewer to the CSO structure where it enters the interceptor through a small diameter throttle pipe and then flows to the wastewater treatment plant. This project will add a second throttle pipe with a regulating valve. The additional throttle pipe will allow more flow to enter the interceptor, since the existing throttle pipes are undersized and/or subject to plugging from debris. In addition, depending on the storm event and the flows in the various parts of the sewer system, flow through the new throttle pipe can be regulated by the throttle valve to allow more flow into the interceptor from areas receiving more rain and less from other areas. Regulating flow to the interceptor with this computerized system can be compared to traffic lights that regulate traffic flow on the streets. Overall, this project supplements the existing throttle pipe for better operation to reduce the number of CSO events and magnitude.

IV. PROJECT DESCRIPTION

The proposed project includes (Figure 2-1 through 2-9):

A. Installing new parallel throttle pipe between the trunk sewer to the interceptor;

B. Installing a motor actuated throttle valve on the new throttle pipe in a vault;

C. Installing a local control station that will link the CSONet communication system to the valve actuator as well as to the city's Supervisory Control and Data Acquisition system via a radio connection;

D. Providing power for the control station from a local utility power pole(s); and

E. Providing back-up power and additional level sensors at the CSO outfall structure and interceptor to operate the throttle valve locally in the event of a power failure.

V. ESTIMATED PROJECT COSTS, AFFORDABILITY AND FUNDING

A. Selected Plan Estimated Cost Summary

Construction and Equipment Costs

CSO 003 Outfall Project Site	$ 300,000
CSO 004 Outfall Project Site	250,000
CSO 011B Outfall Project Site	244,000
CSO 014 Outfall Project Site	200,000
CSO 025 Outfall Project Site	200,000

CSO 026 Outfall Project Site	294,000
CSO 027/028 Outfall Project Sites	488,000
CSO 044 Outfall Project Site	200,000
CSO 030 Outfall Project Site	200,000
	$ 2, 376,000
Contingencies	237,000
Total Estimated Construction Cost	**$ 2,613,000**
Non-Construction Costs	
Administrative and Legal	$ 170,000
Engineering Fees	
Design	225,000
Construction	90,000
Non-Construction Subtotal	**$ 485,000**
Total Estimated Project Cost (rounded)	**$ 3,098,000**

B. The city will borrow approximately $3,098,000 through a 20-year State Revolving Fund Loan Program (SRF) loan at an interest rate to be determined at loan closing. Monthly user rates and charges may need to be analyzed to determine if adjustments are required for loan repayment.

VI. DESCRIPTION OF EVALUATED ALTERNATIVES

The city's CSO-LTCP evaluated several alternatives that would reduce CSO volumes, solids, bacteria and floatables. The alternatives included:

A. "No Action"

This alternative was rejected, since the city is required to meet the goals of their LTCP by eliminating dry weather overflows as well as reduce the frequency and magnitude of the wet weather CSO events that discharge to the St Joseph River.

B. Collection System Controls

This alternative evaluated both the CSO diversion structure improvement program (rehabilitation and replacement work) and real-time control (optimum operation of the existing collection system).

C. Storage Technologies

This alternative evaluated storage of combined sewer overflow in the sewer trunk lines (optimum operation/use of collection system).

D. Treatment Technologies

This alternative evaluated high-rate clarification, vortex separation, compressed media filtration and Ultra-violet disinfection.

Certain alternatives and technologies will be common to all CSO control strategies considered, and should be integrated with other treatment and source technologies. **The alternatives selected for this project include the collection system controls and storage technologies.**

VII. Environmental Impacts of the Feasible Alternatives

A. Direct Impacts of Construction and Operation

Disturbed and Undisturbed Areas: The proposed project will be constructed on sites that have been previously disturbed during the original construction of the CSO diversion structures and the streets where they are located.

Structural Resources and Historic Sites (Figure 5-1): The proposed project should not affect any historical or architectural structures. The SRF's finding, pursuant to the Section 106 of the National Historic Preservation Act, is: "no historic properties affected."

Plants and Animals: The proposed project will not impact state or federal-listed endangered species or their habitat.

Prime Farmland: The proposed project will not cause a conversion of prime farmland.

Wetlands (Figure 5-2): The proposed project will not impact any wetlands.

100-Year Floodplain (Figure 5-3): The only project site that lies within the 100-year floodplain is CSO 025. However, since work will be done within the existing CSO structure and piping will be underground no displacement of flood waters will occur.

Surface Waters: The proposed project will not adversely affect water of high quality listed in 327 IAC 2-1-2(3), exceptional use streams listed in 327 IAC 2-1-11(b), Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-2, Salmonid Streams listed in 327 IAC 2-1.5-5(a)(3), or waters on the Outstanding Rivers list (Natural Resources Commission Non-Rule Policy Document).

Groundwater: The proposed project may require dewatering at one or more of the CSO diversion structures during construction where new throttle pipes will be installed parallel to an existing one. Drinking water supplies will not be affected during or after construction.

Air Quality: Construction to the CSO diversion structures will cause short term impacts to air quality, such as dust, odors, airborne contaminants and noise from the operation of the equipment.

Open Space and Recreational Opportunities: The proposed project's construction and operation will neither create nor destroy open space and recreational opportunities.

National Natural Landmarks: The construction and operation of the proposed project will not impact National Natural Landmarks.

The proposed project will not affect the Lake Michigan Coastal Zone.

B. Indirect Impacts

The city's Preliminary Engineering Report (PER) states: *The City will require new development and treatment works projects to be constructed within the guidelines of the U.S. Fish and Wildlife Service, IDNR, IDEM, and other environmental review agencies.*

C. Comments from Environmental Review Authorities

This document serves as the first notice to the State Historic Preservation Officer, the Indiana Department of Natural Resources Environmental Unit and the U. S. Fish and Wildlife Service.

In correspondence dated March 17, 2009, the Natural Resources Conservation Service stated: *The project to make sewer improvements in the City of South Bend, St. Joseph County, Indiana, as stated in your letter received March 11, 2009, will not cause a conversion of prime farmland.*

VIII. Mitigation Measures

The city's PER lists the following mitigation measures:

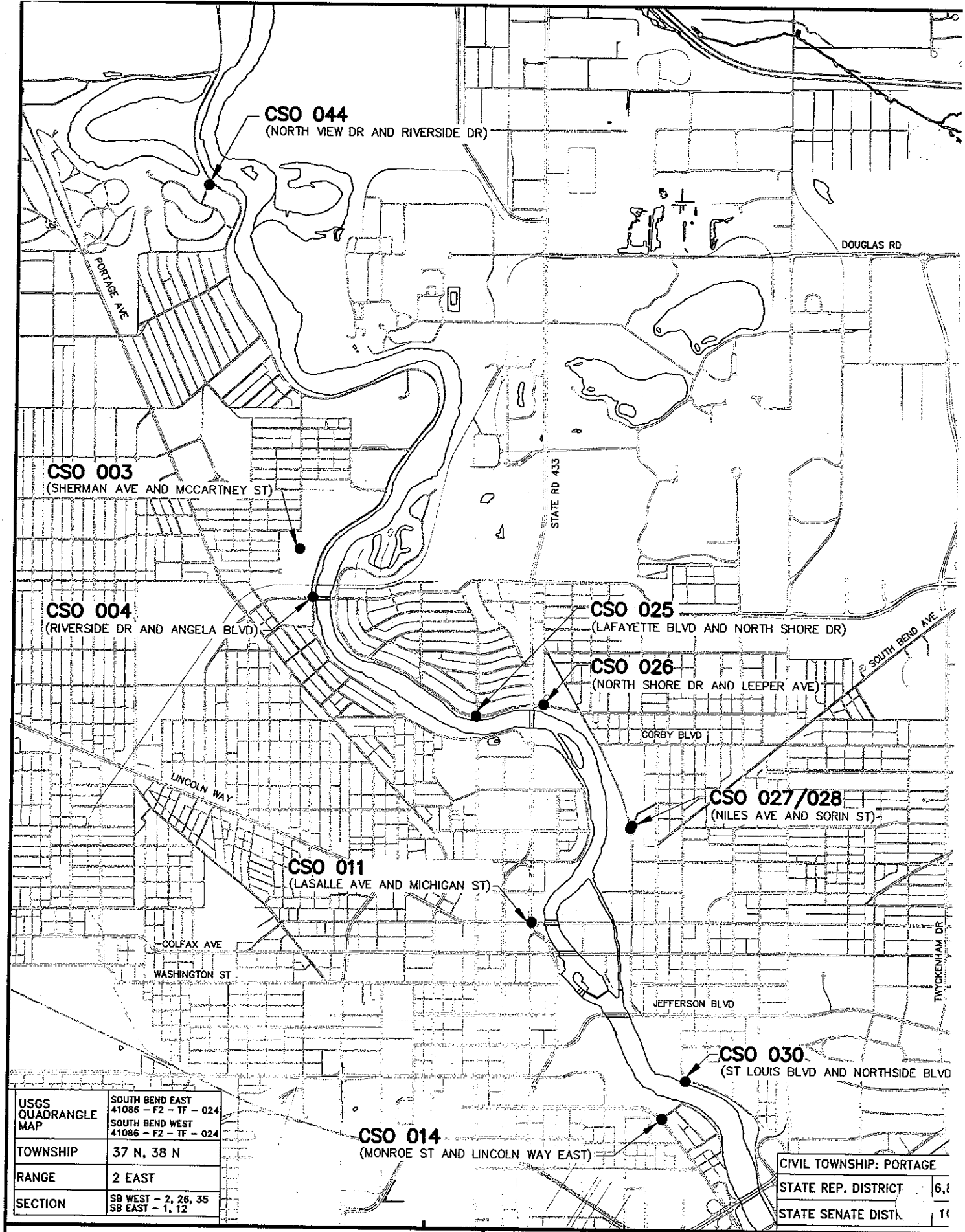
A. As determined appropriate, precautions shall be taken during construction to prevent erosion and sediment transport.

B. Mitigation measures suggested in comment letters received from the reviewing agencies will be implemented as determined appropriate.

C. All disturbed areas shall be restored to their pre-construction level.

IX. Public Participation

A properly noticed public hearing was held on April 6, 2009 at 9:00 a.m., at the City of South Bend Board of Public Works to discuss the PER and solicit citizens views, questions and concerns regarding the proposed project; no comments were raised during the public hearing and no written comments were received during the five day comment period following the hearing.



USGS QUADRANGLE MAP	SOUTH BEND EAST 41086 – F2 – TF – 024 SOUTH BEND WEST 41086 – F2 – TF – 024
TOWNSHIP	37 N, 38 N
RANGE	2 EAST
SECTION	SB WEST – 2, 26, 35 SB EAST – 1, 12

CIVIL TOWNSHIP: PORTAGE	
STATE REP. DISTRICT	6,8
STATE SENATE DISTR.	1(

CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
CSO PROJECT SITE LOCATIONS

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FIGURE
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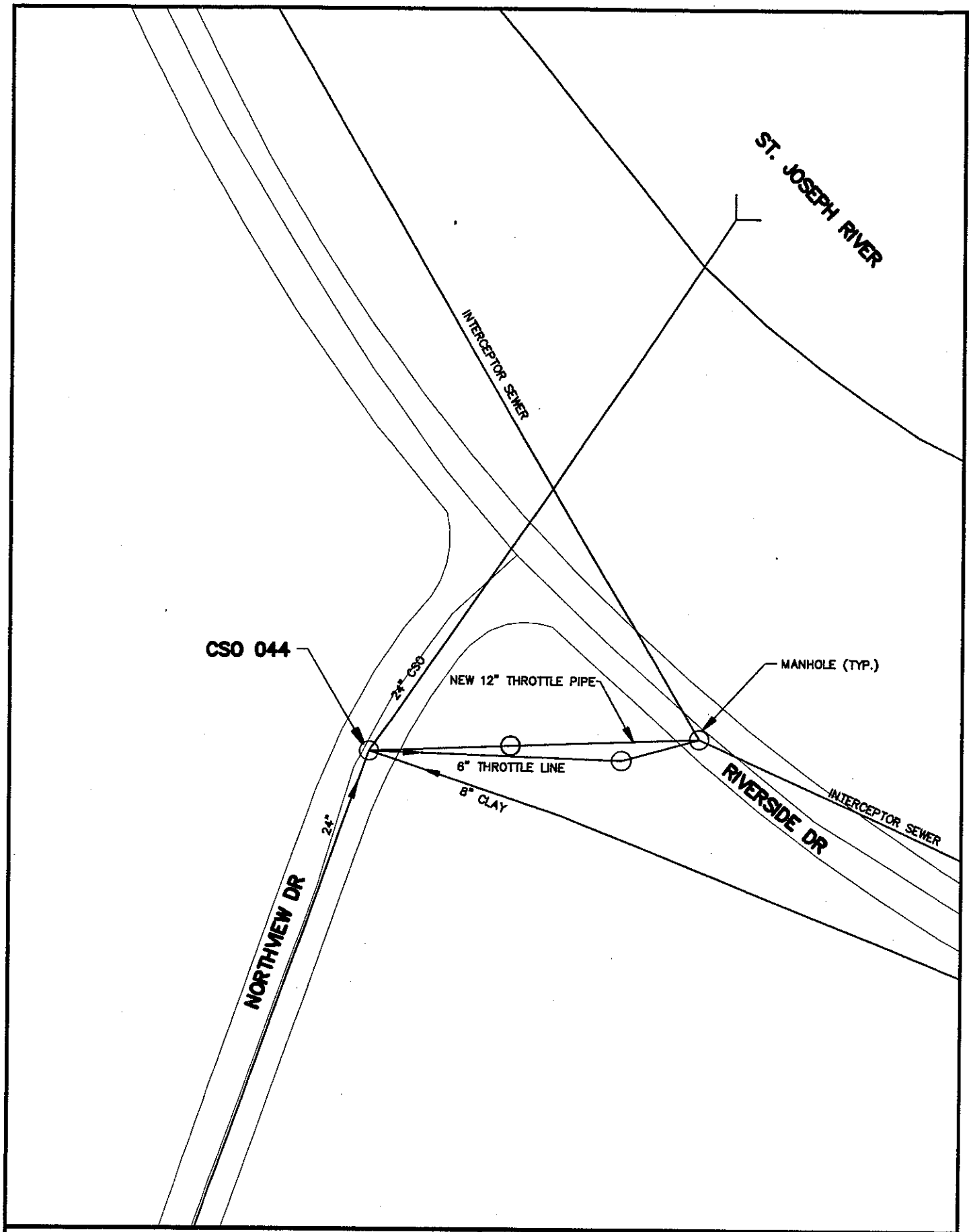
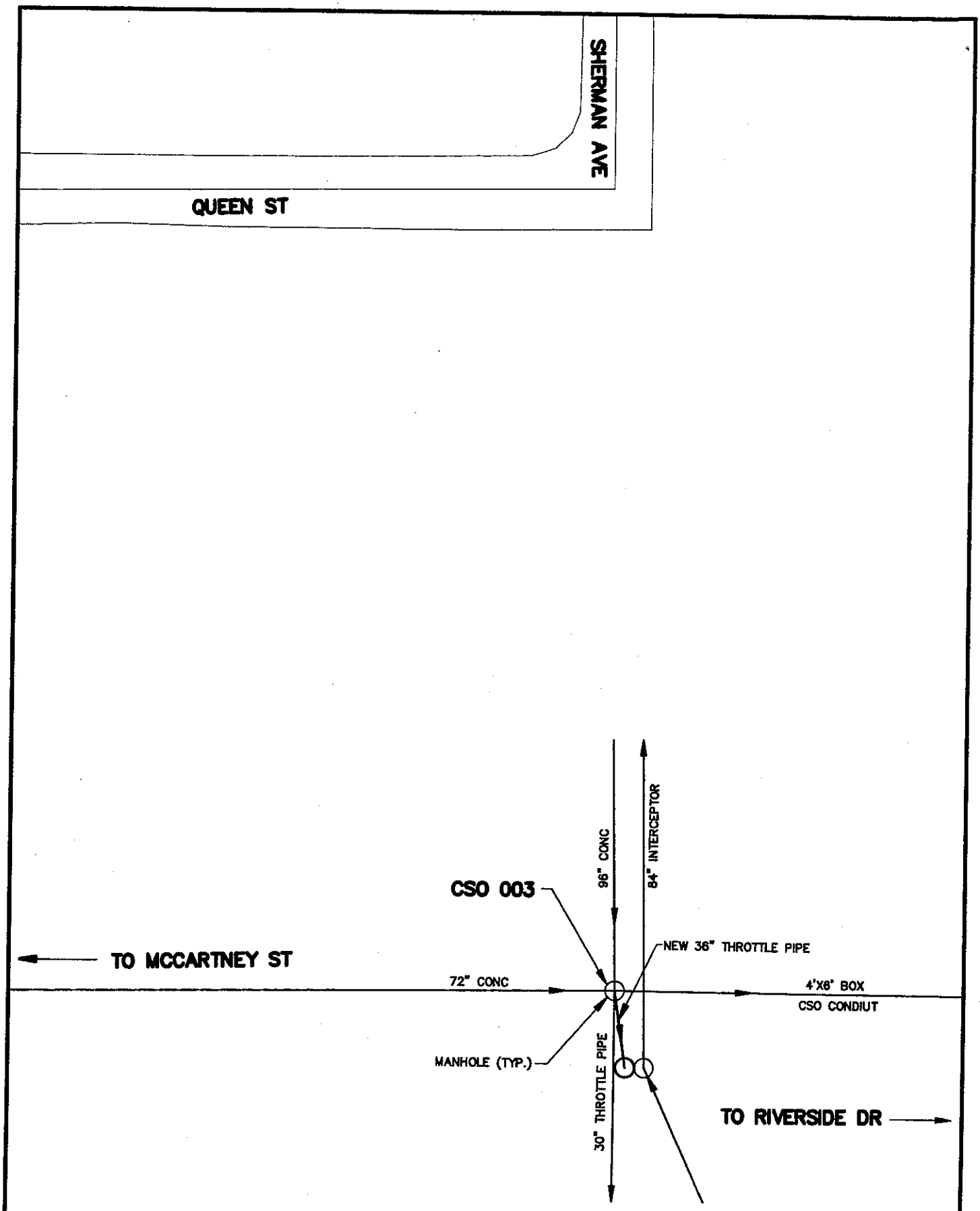
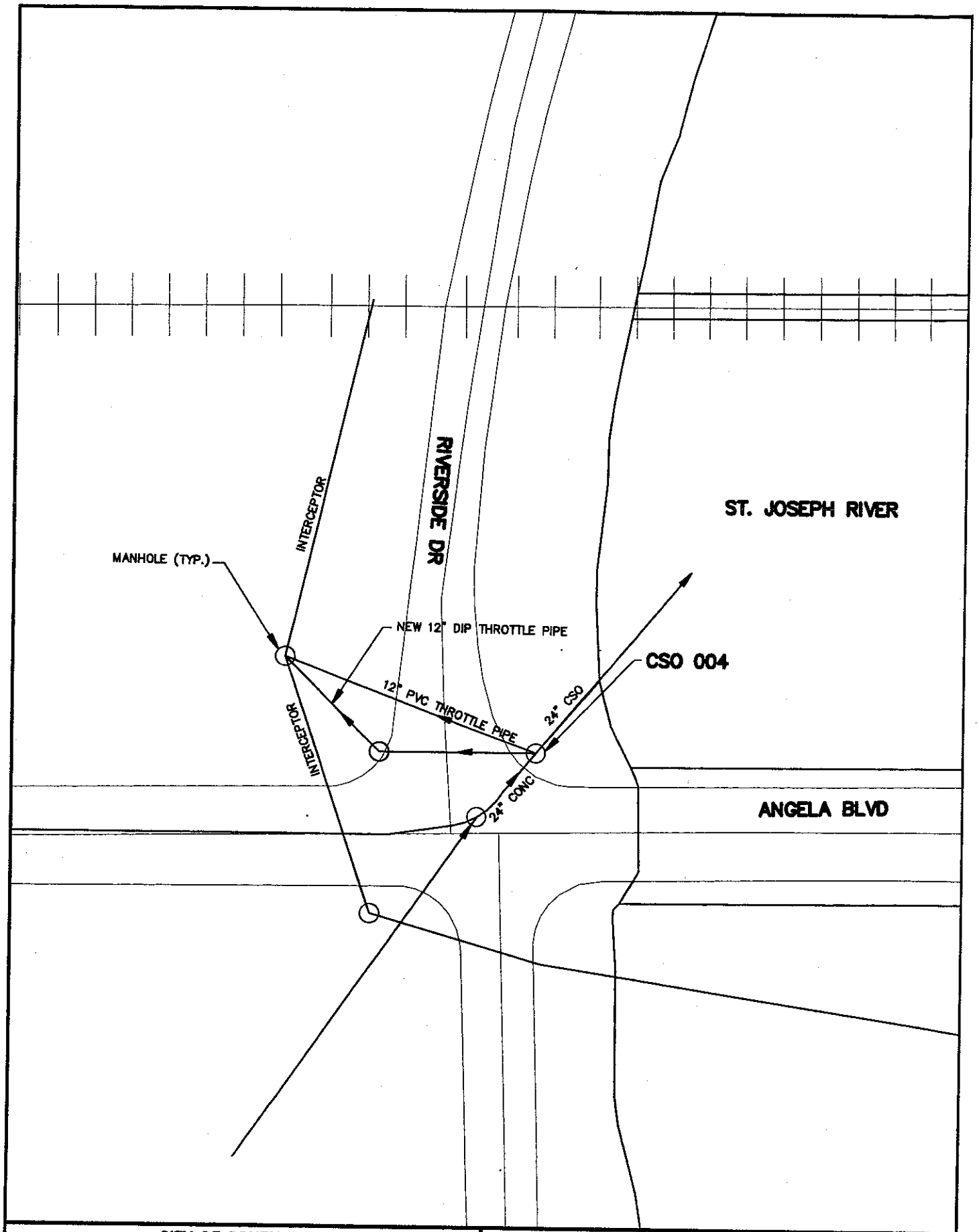


CITY OF SOUTH BEND WASTE WATER STATE REVOLVING FUND	0 50 FEET	N W E S	REVISED 6-19-2009
EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II CSO PROJECT SITE: CSO 044			FIGURE 2-1



CITY OF SOUTH BEND WASTE WATER STATE REVOLVING FUND	0 50 FEET	N W E S	REVISED 6-19-2009
EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II CSO PROJECT SITE: CSO 003			FIGURE 2-2



CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
CSO PROJECT SITE: CSO 004

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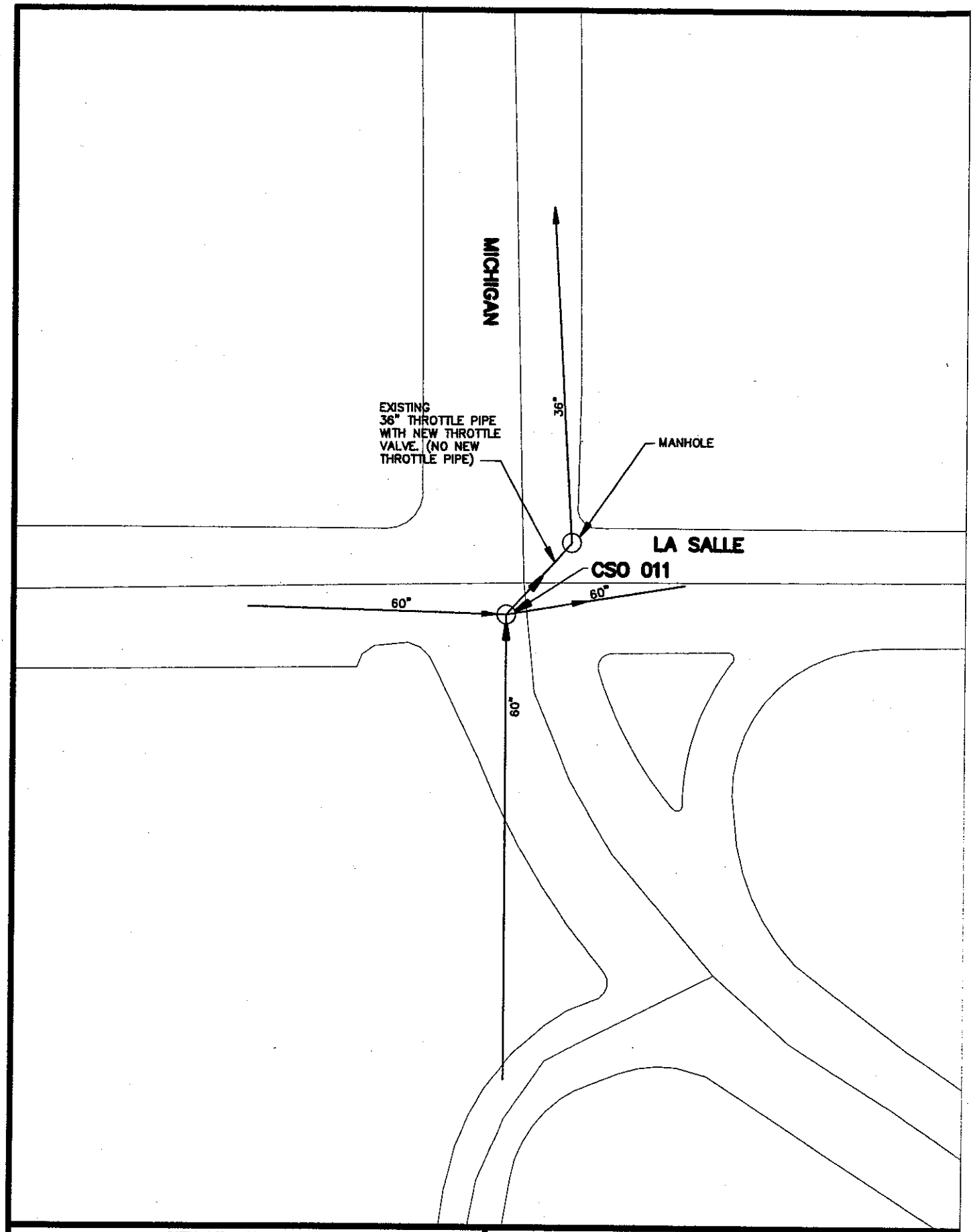
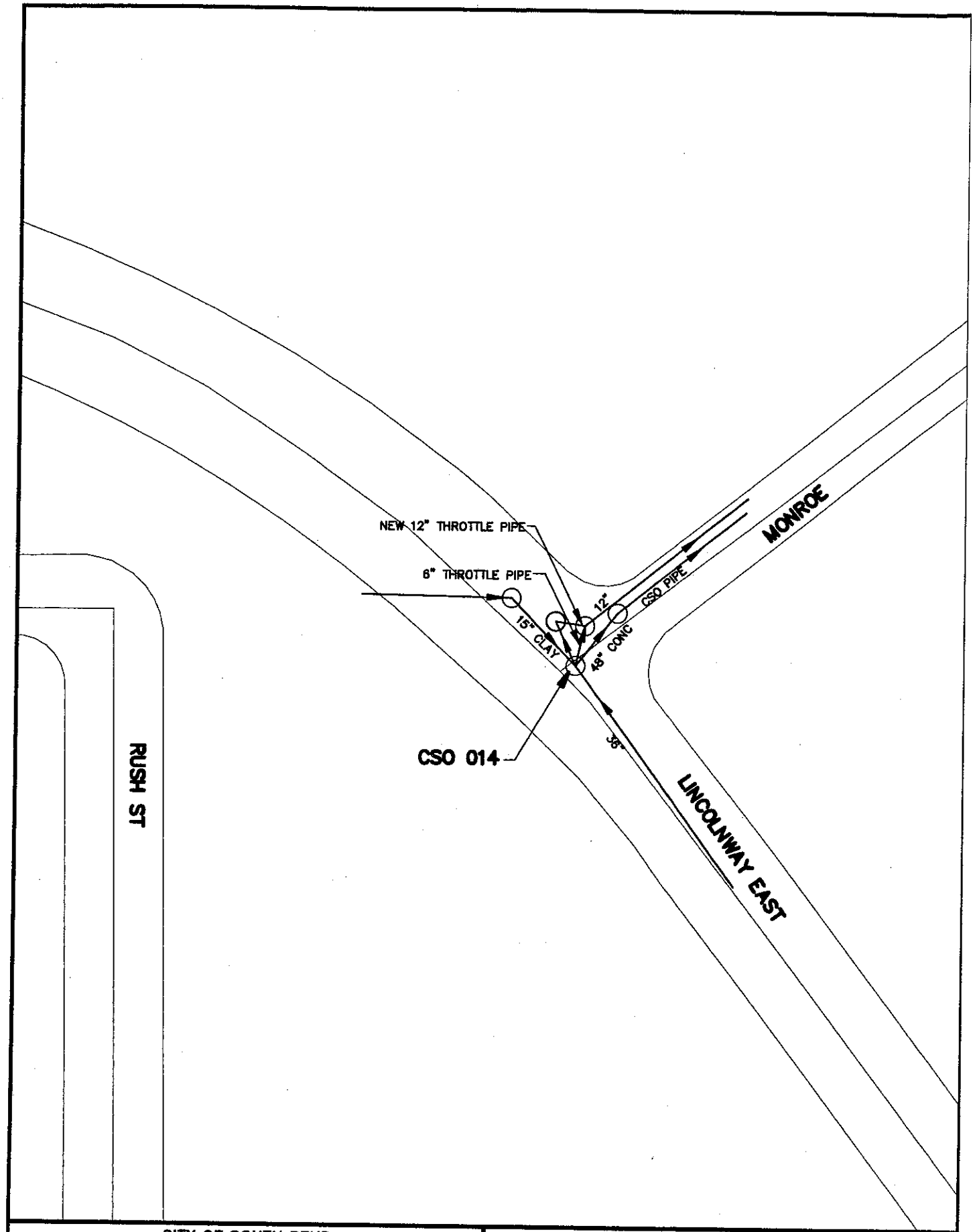
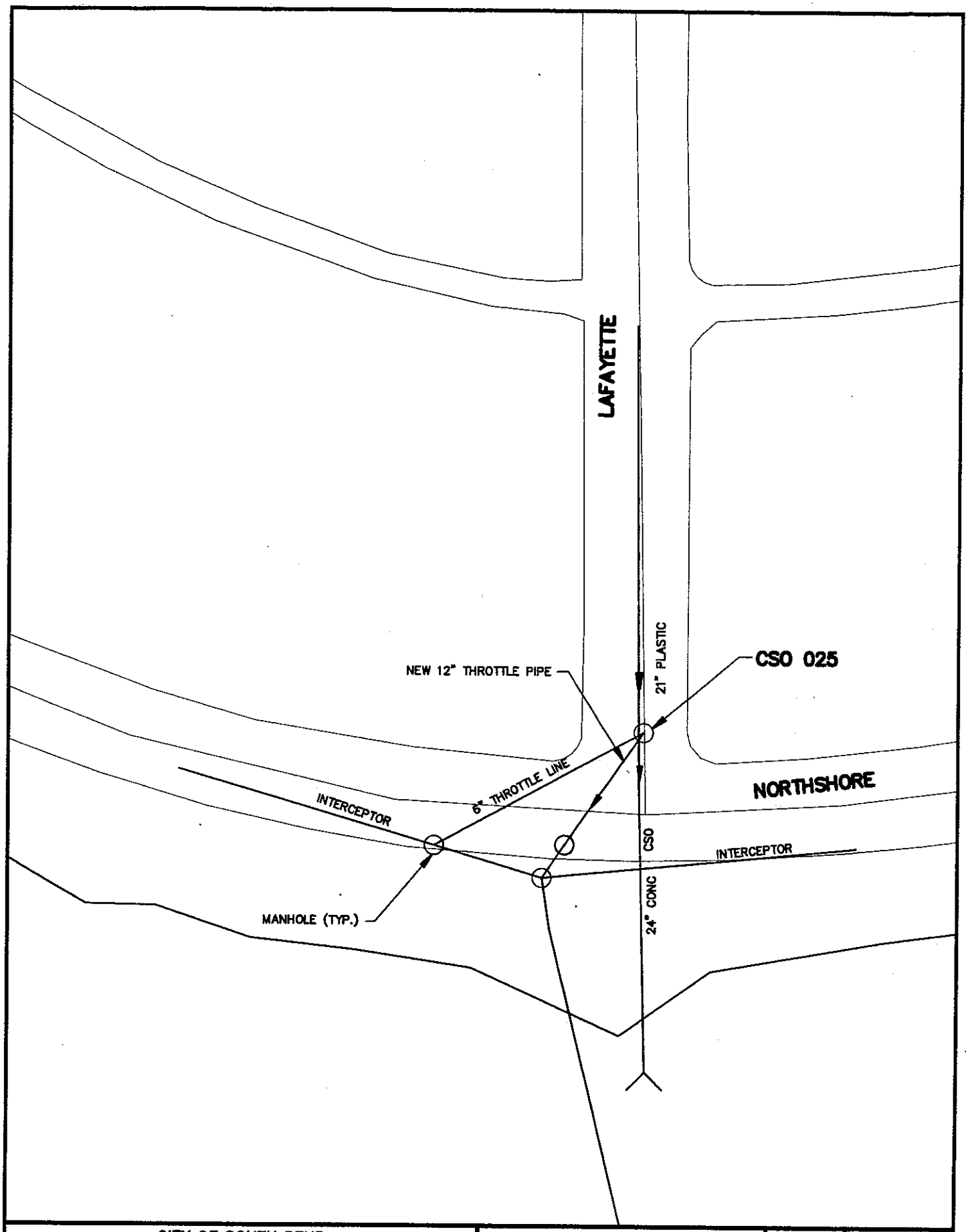
FIGURE
2-3



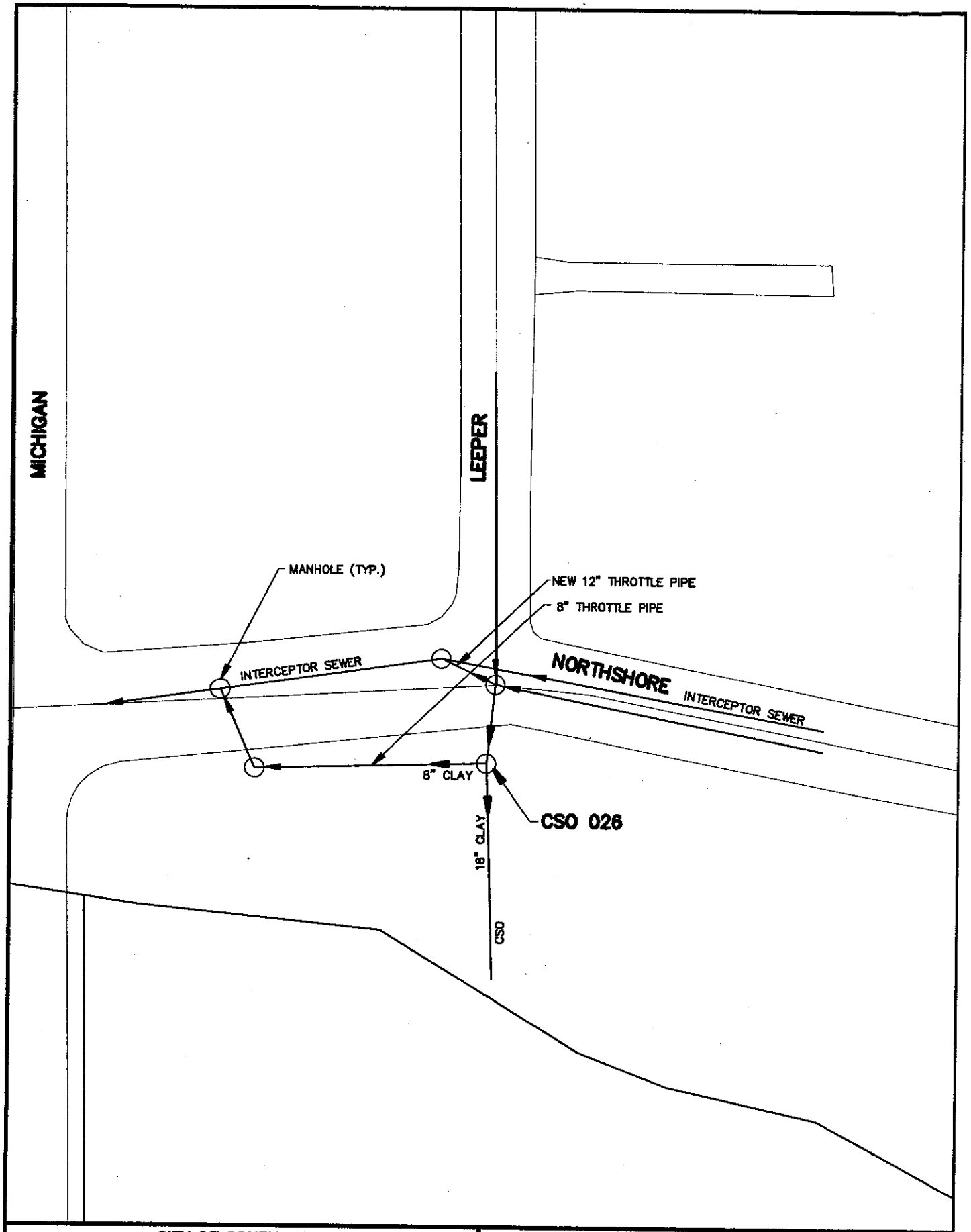
CITY OF SOUTH BEND WASTE WATER STATE REVOLVING FUND	0 50 FEET	N W E S	REVISED 6-19-2009
EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II CSO PROJECT SITE: CSO 011			FIGURE 2-4



CITY OF SOUTH BEND WASTE WATER STATE REVOLVING FUND	0 50 FEET	N W E S	REVISED 6-19-2009
EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II CSO PROJECT SITE: CSO 014			FIGURE 2-5



CITY OF SOUTH BEND WASTE WATER STATE REVOLVING FUND	0 50 FEET	N W E S	REVISED 6-19-2009
EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II CSO PROJECT SITE: CSO 025			FIGURE 2-6



CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
CSO PROJECT SITE: CSO 026

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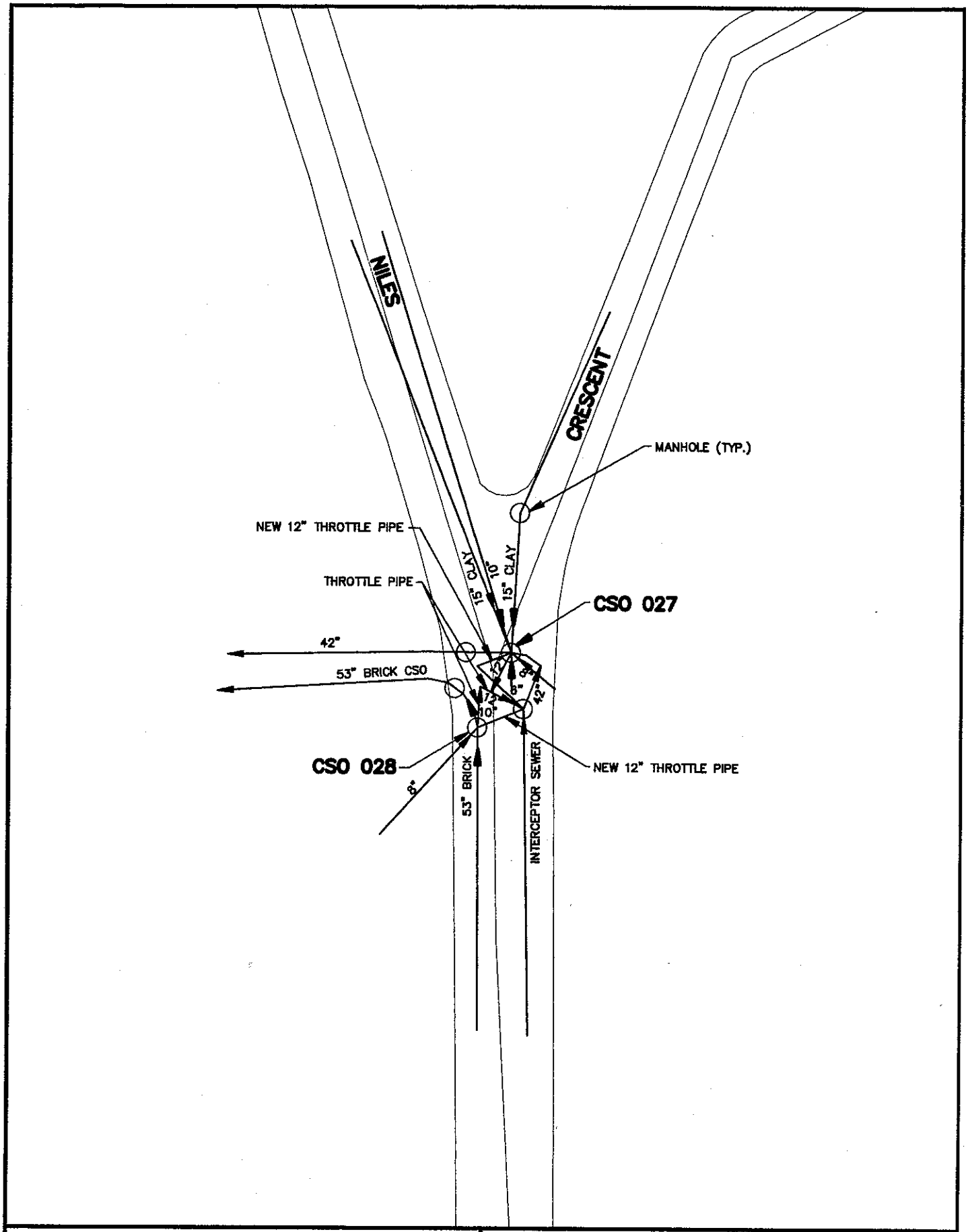
6-19-2009

FIGURE
2-7



CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
CSO PROJECT SITE: CSO 027/028

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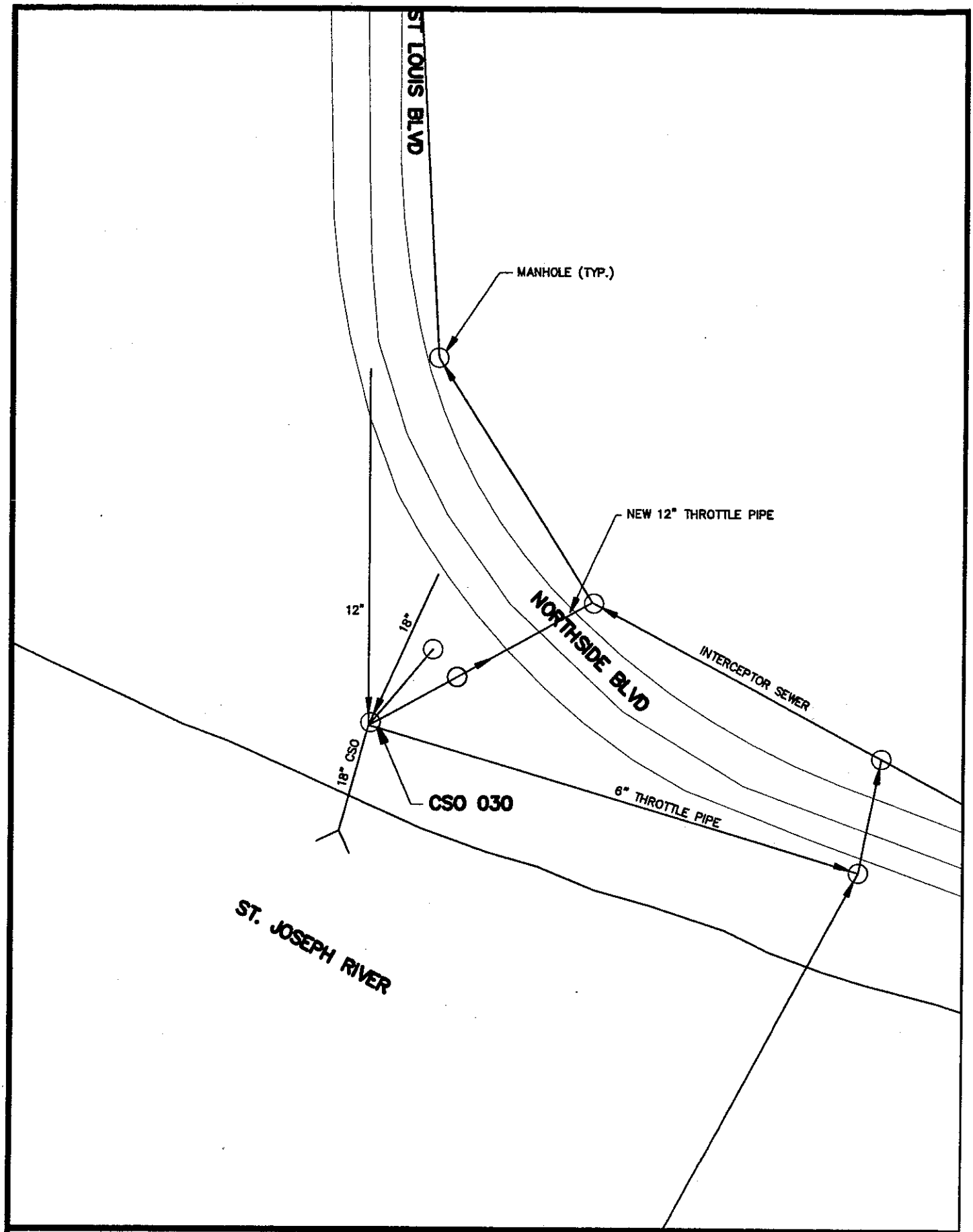
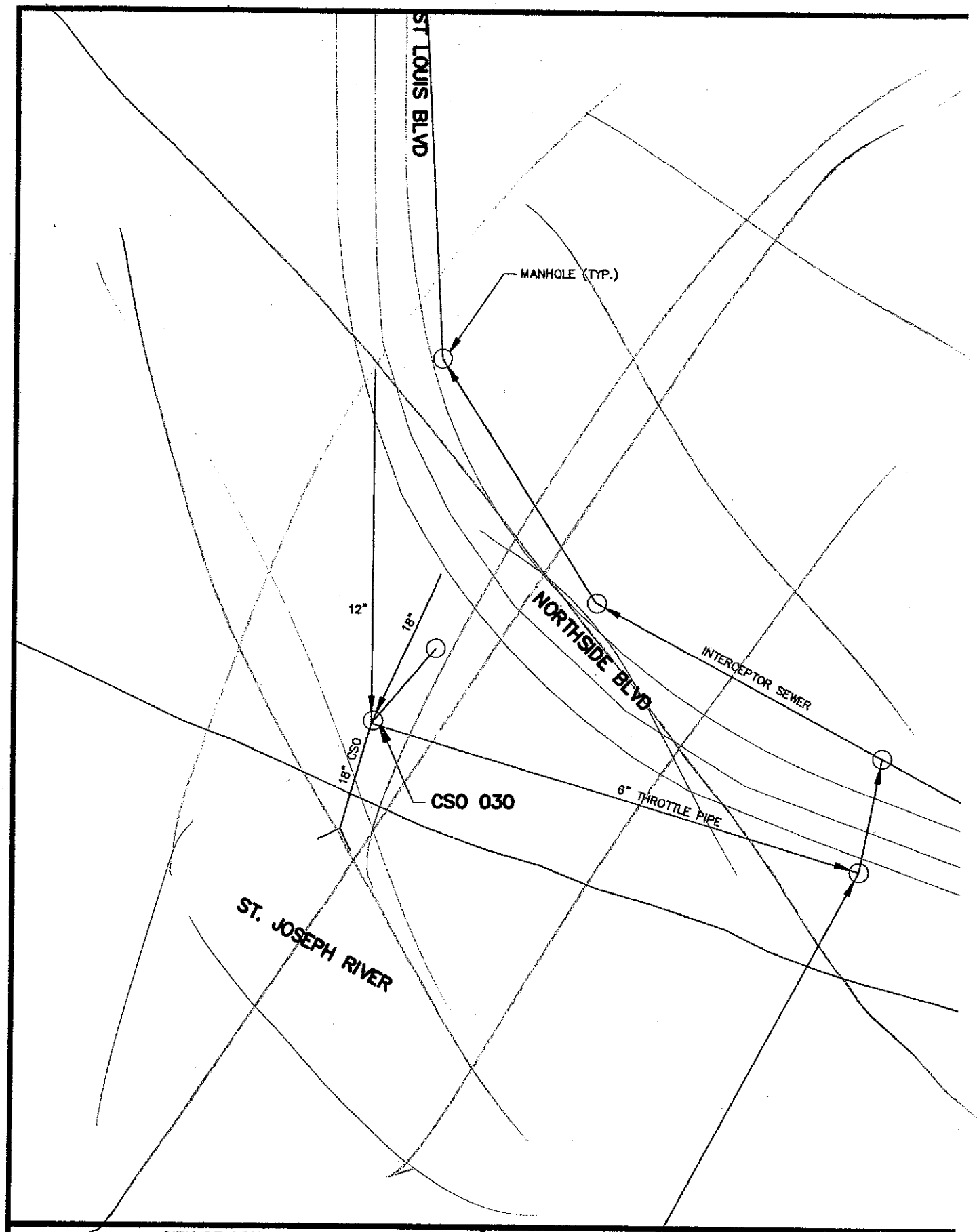
REVISED
6-19-2009

FIGURE
2-8



CITY OF SOUTH BEND WASTE WATER STATE REVOLVING FUND	0 50 FEET	N W E S	REVISED 6-19-2009
EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II CSO PROJECT SITE: CSO 030			FIGURE 2-9



CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
CSO PROJECT SITE: CSO 030

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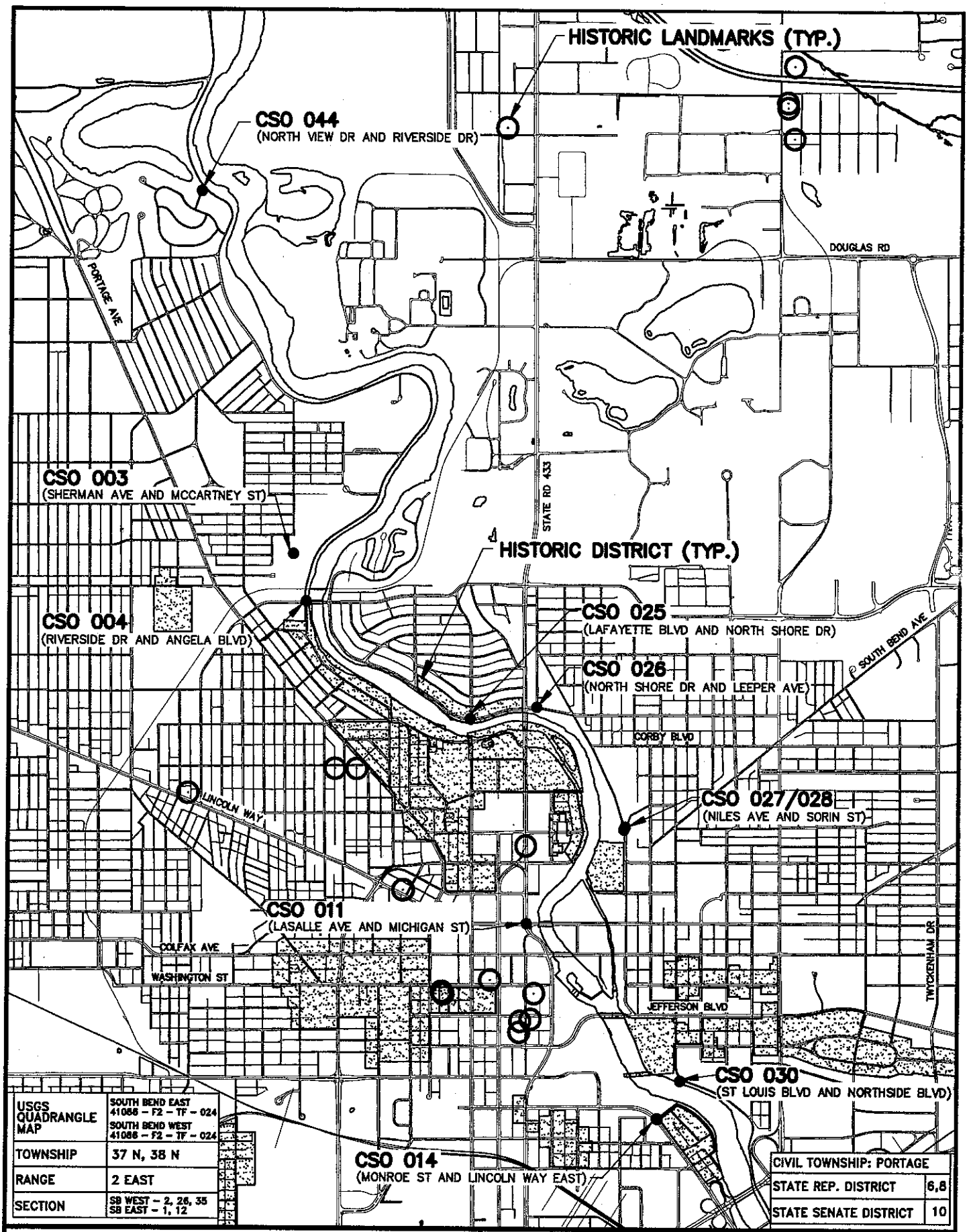
FIGURE
2-9

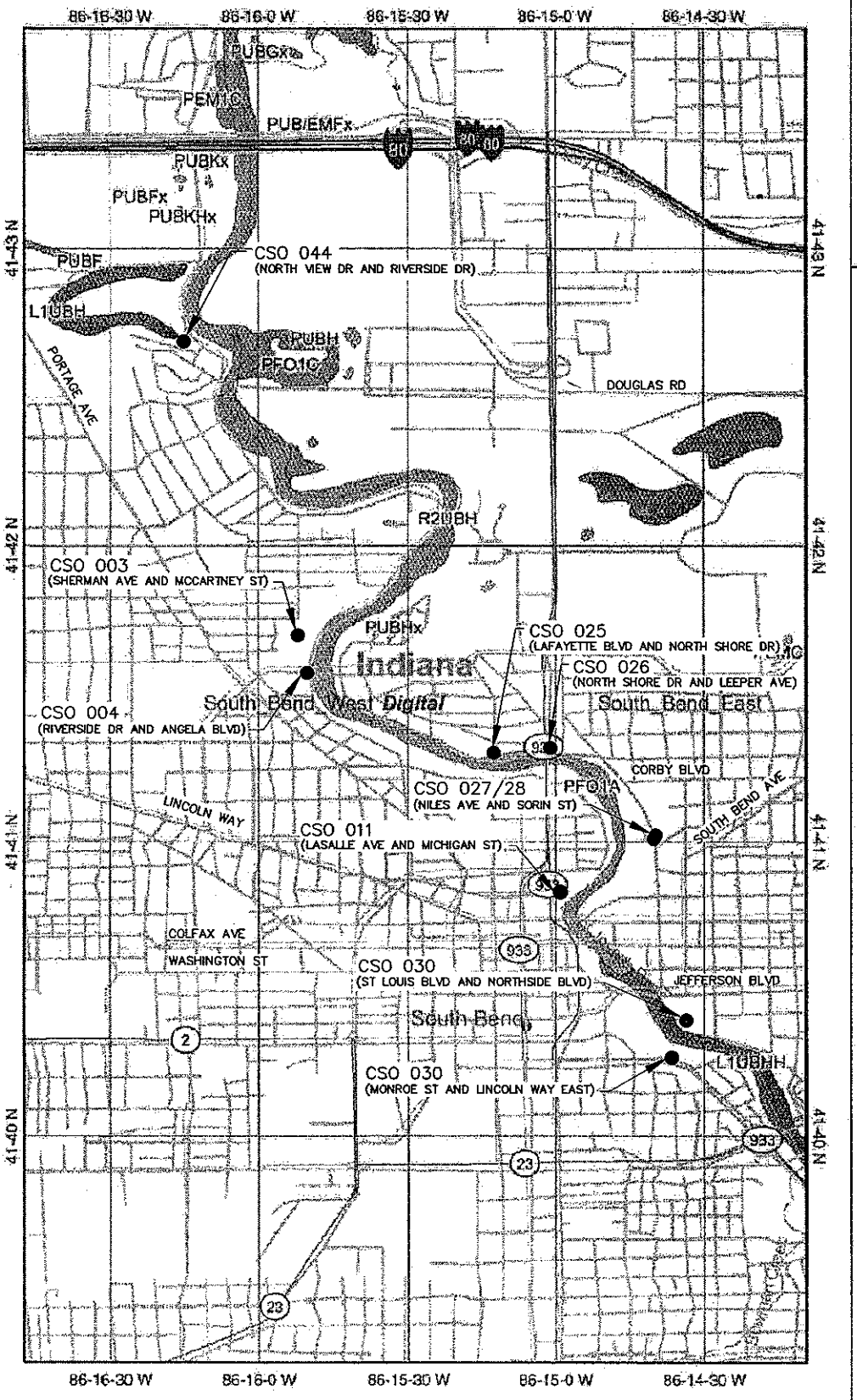


CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
HISTORIC LANDMARKS IDENTIFIED IN
THE ST. JOSEPH COUNTY INTERIM REPORT

REVISED
6-19-2009

FIGURE
5-1



Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Scale: 1:40,000

USGS QUADRANGLE MAP	SOUTH BEND EAST 41086 – F2 – TF – 024 SOUTH BEND WEST 41086 – F2 – TF – 024
TOWNSHIP	37 N, 38 N
RANGE	2 EAST
SECTION	SB WEST – 2, 26, 35 SB EAST – 1, 12

CIVIL TOWNSHIP: PORTAGE	
STATE REP. DISTRICT	6,8
STATE SENATE DIST.	1(

CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
NATIONAL WETLANDS INVENTORY MAP

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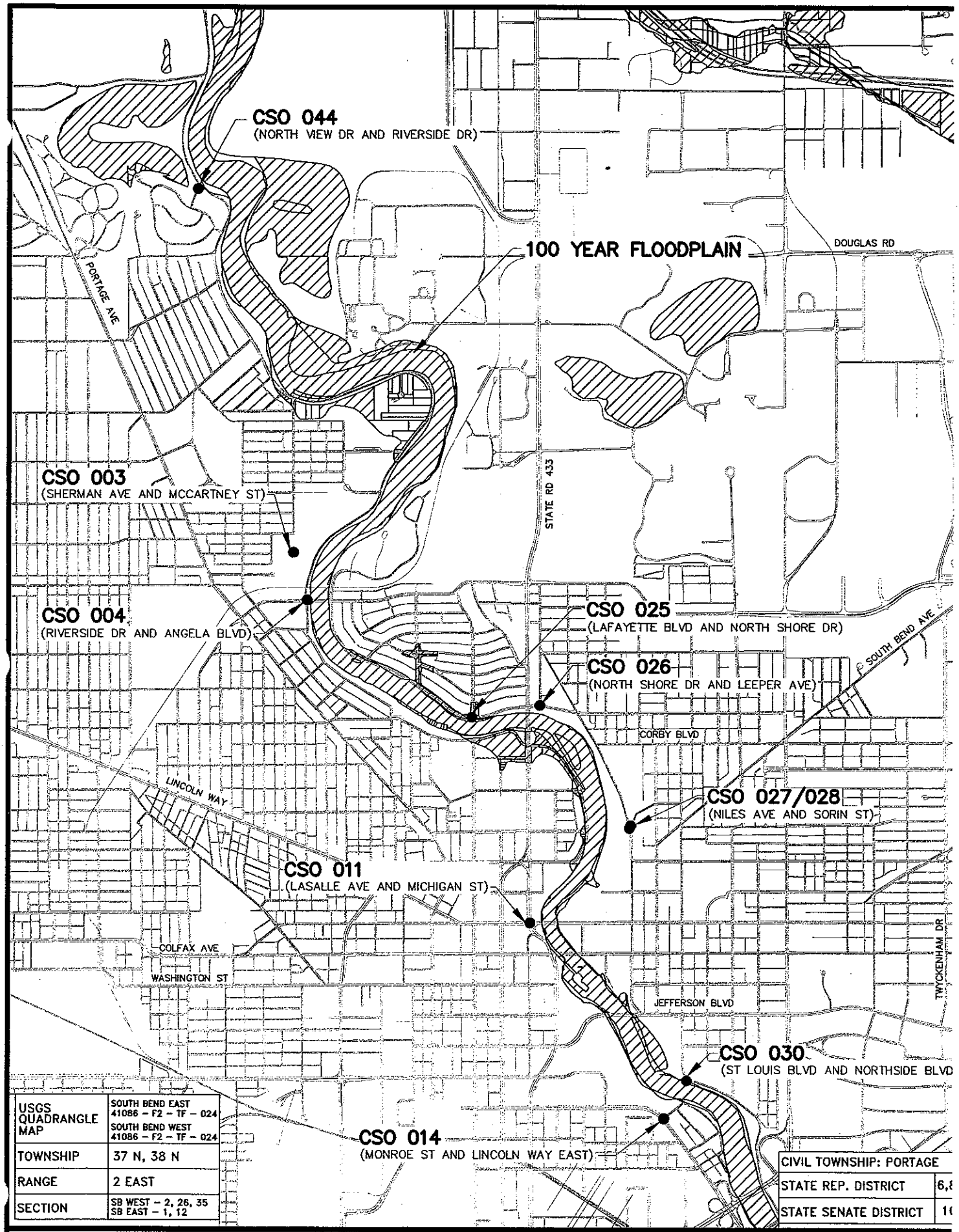
FIGURE
5 – 2



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CIVIL TOWNSHIP: PORTAGE	
STATE REP. DISTRICT	6,8
STATE SENATE DISTRICT	1(

CITY OF SOUTH BEND
WASTE WATER STATE REVOLVING FUND

EMBEDDED SENSOR CSO MONITORING PROJECT PHASE II
100 YEAR FLOODPLAIN LOCATION MAP
(FEMA FLOOD INSURANCE RATE MAPS)

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FIGURE
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